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EXAMINER

CHOOBIN, BARRY

ART UNIT

PAPER NUMBER

2625

DATE MAILED: 03/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/287,406

Applicant(s)

SHINBATA, HIROYUKI

Examiner

Barry Chooabin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 December 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9,23,24,26,27 and 29-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9,23,24,26,27 and 29-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed December 12, 2002 have been fully considered but they are not persuasive.
2. Applicant argues that prior art fails to disclose obtaining an end point or irradiation.
3. The examiner disagrees. Since applicant fails to define "an end point of irradiation", the Examiner interprets "an end point of irradiation" as an edge point or contour point.
4. Applicant argues that prior art fails to disclose calculating second order difference values.
5. The Examiner disagrees. Takeo discloses in Fig.1A, The first representative value and the second representative value are compared with each other, and the presence or absence of a limited irradiation field is judged on the basis of the results of the comparison.

FIG. 1A

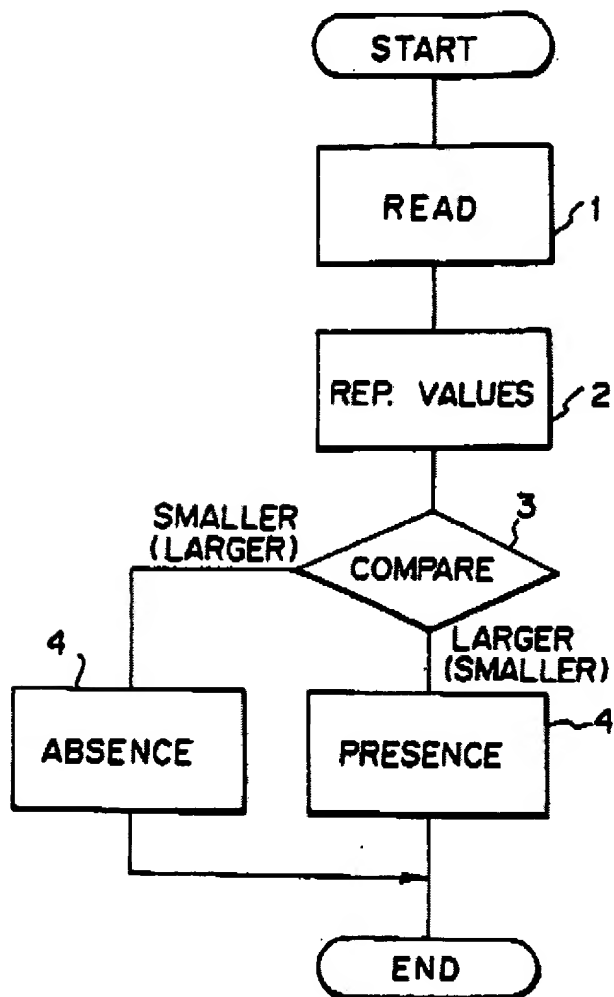
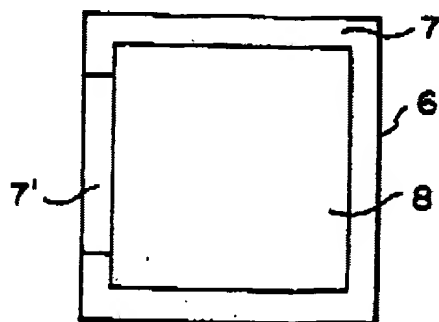


FIG. 1B



Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1, 9, 23, 24, 26, 27 and 29 – 32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claims 1, 9, 23, 24, 26, 27, and 29 – 32, applicant fails to define “an end point of irradiation”. Therefore, the Examiner interprets “an end point of irradiation” as an edge point or contour point.

Claim Rejections - 35 USC § 102

- I. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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II. Claims 1 - 9, 23, 24, 26, 27, 29, 30 - 32, 39 and 40 are rejected under 35 U.S.C. 102(b) as being anticipated by Takeo (U.S. Patent 5,091,970).

As to claims 1, 9, 23, 24, 26, 27, 29, 30, 31 and 32, Takeo discloses an image processing method comprising:

a step of determining a plurality of areas arranged in a predetermined direction on an image and each having a predetermined shape (column 5, lines 22 - 34 wherein "(ii) based on said image signal, calculating a first representative value which is representative of the values of the image signal corresponding to the overall peripheral portion of said recording medium (for example, a region 7 shown in FIG. 1B) or corresponding to part of said peripheral portion (for example, a region 7' shown in FIG. 1B), and a second representative value which is representative of the values of the image signal corresponding to the overall area of said recording medium (i.e. the area composed of the regions 7 and 8 shown in FIG. 1B) or corresponding to approximately the center portion of said recording medium (for example, the region 8 shown in FIG. 1B) (step 2),

step of calculating a secondary difference value of density values from a plurality of primary difference values, wherein each primary difference value corresponds to a difference between density values each of which represents a respective area in one dimensional image data through said object area representing the respective areas in said plurality of areas (refer for example to column 5, lines 35 - 40 wherein comparing said first representative value and said second representative value with each other (step 3), and a step of judging one end point of an irradiation area from said secondary

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difference values calculated in said calculating step (refer for example to column 5, lines 37 - 40 wherein judging the presence or absence of a limited irradiation field on the basis of the results of the comparison is disclosed.).

As to claim 2, Takeo discloses a step for determining said radiation area from a plurality of end points of the irradiation area judged in said judging step (refer for example to column 4, lines 11- 18 wherein disclosed methods for recognizing an irradiation field, several points which are considered to be present on a contour of the irradiation field, i.e. several prospective contour points, are detected. Thereafter, the straight lines or curves connecting the prospective contour points are detected, and the region surrounded by the straight lines or curves is recognized as the irradiation field.).

As to claims 3, 4, 5, and 6, Takeo discloses said density values representing the respective area in said plurality or areas are average density values in the respective areas (refer for example to column 6, lines 3 - 18 wherein the first representative value and the second representative value each may be, for example, the mean value of the corresponding image signal, the median value of the corresponding image signal, the value of the formula expressed as (maximum value of the corresponding image signal +minimum value of the corresponding image signal)/2, or the value of the image signal corresponding to a cumulative value determined from a cumulative probability density function (e.g. a function B shown in FIG. 4) which represents cumulative values of

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frequencies of occurrence of respective values of the corresponding image signal. The first representative value and the second representative value need not be calculated necessarily with the same operating process. For example, both of them need not be mean values necessarily.).

As to claim 7, Takeo discloses density values representing the respective areas in the plurality of areas are calculated using integrated values in a predetermined direction of pixels in said plurality of areas (refer for example to column 10, lines 23 - 27 wherein With reference to FIG. 5, a sheet of X-ray film 40 on which an X-ray image has been recorded is placed at a predetermined position, and is conveyed in the direction indicated by the arrow Y' by a film conveyance means 41.)

As to claim 8, Takeo discloses density values representing the respective areas in said plurality of areas are obtained by smoothing said integrated values (refer for example to column 2, lines 32 - 39 wherein in the final read out, the stimuable phosphor sheet is scanned with a light beam having an energy level higher than the energy level of the light beam used in the preliminary read out, and the radiation image is read out with the factors affecting the image signal **adjusted to appropriate values** on the basis of the results of an analysis of the preliminary read-out image signal.).

As to claim 24, Takeo discloses an image processing apparatus comprising;
means for detecting an end point of an irradiation area based on pixel values in an
object area (refer for example to column 5, lines 14 – 17);

Means for evaluating a detection result by said detection means (refer for example to
column 5, lines 22 – 26 wherein calculating representative value corresponds to
evaluation detection means);

And means for judging whether an irradiation area is limited in the object area base on
an evaluation result by said evaluation means (refer for example to column 5, lines 38 –
40 wherein Judging the presence or absence of a limited irradiation field on the bases of
the results of the comparison is one of the steps comprised in Takeo).

Claims 39 and 40 are similarly analyzed and rejected.

Claim Rejections - 35 USC § 103

III. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all
obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or
described as set forth in section 102 of this title, if the differences between the subject
matter sought to be patented and the prior art are such that the subject matter as a
whole would have been obvious at the time the invention was made to a person having

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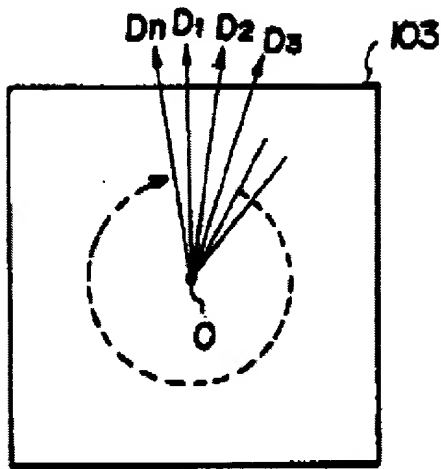
ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

IV. Claims 33 – 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeo in view of Takeo (U.S. Patent 4,992,663).

As to claim 36, Takeo (970) fails to disclose area in one dimensional image data through said object area.

But on the other hand, Takeo (663) discloses the differentiation processing section 221 differentiates the components of the preliminary read-out image signal Sp corresponding to positions on the stimuable phosphor sheet 103 located along a line in the direction of D1, then

FIG. 3



along lines in the directions D2, D3, . . . , Dn shown in FIG. 3. **Differentiation processing may be of the one -dimensional** type of first or higher order, or may be of the two-dimensional type of first or higher order.

In cases of a discretely sampled image, differentiation is equivalent to **calculation of the difference between the values of neighboring image signal components**. In this embodiment, the difference in the values of neighboring image signal components is calculated. (Refer for example to column 13, lines 13 - 26).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide the differentiation process of Takeo (663)

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with the work of Takeo (970) in order to improve the signal extraction particularly the prospective contour point signal which is considered to be present on the irradiation field (refer for example to column 13, lines 43 - 48).

As to claims 33 and 34, Takeo (663) discloses variance positions of an end points are calculated (refer for example to column 4, lines 45 – 59 wherein the irradiation field is recognized by obtaining digital image data for a plurality of positions on the stimuable phosphor sheet from the image signals, detecting prospective edge points, which are considered to be edge portions of the irradiation field on the stimuable phosphor sheet, on the basis of the image data of positions radially outwardly arranged in a plurality of directions from a predetermined point inside the irradiation field, and recognizing as the irradiation field the region surrounded by the lines passing through the prospective edge points. Alternatively, a prospective contour point may be detected by, for example, a method utilizing pattern matching, or a method wherein a straight line is applied and the contour of an irradiation field is discriminated from an inclination of the straight line.).

Claims 35, 37 and 38 are similarly analyzed and rejected.

Claims 10 – 22, 25 and 28 are cancelled.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Barry Choobin whose telephone number is 703-306-5787. The examiner can normally be reached on M-F 7:30 AM to 18:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on 703-308-5246. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Barry Choobin
March 7, 2003



Jayanti K. Patel
Primary Examiner